MATA35 - Calculus II for Biological Sciences

Assignment 3

Due Date: **Friday, February 28, sharply by 11:30 pm** via the Crowdmark electronic submission invitation.

This assignment is based on lecture material covered in Week 5 and Week 6, which corresponds to sections 9.4, 8.1, 8.2, and 8.4 of the textbook. Do not use results outside of these sections or lecture material to answer the questions below.

You are allowed to discuss this assignment with your classmates, TAs and the instructor. However, your written solutions that you submit must be in accordance with the University of Toronto's Code of Behaviour on Academic Matters.

Solve all questions. Full credit is given only for solutions that are correct and complete.

(1) (10 points) (a) Find the linear approximation of the function

$$f(x, y) = 1 - xy\cos(\pi y)$$

at $(1, 1)$ and use it to approximate $f(1.02, 0.97)$.

(b) The wind-chill index W is the perceived temperature when the actual temperature is T and the wind speed is v. The wind-chill index is modelled by the function